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AHMED, HASAN SYED				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/725,729

Applicant(s)

BLOTSKY ET AL.

Examiner

HASAN S. AHMED

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 2 and 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-11 and 13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/5508)  
Paper No(s)/Mail Date 7/30/08
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

- Receipt is acknowledged of applicants': (a) IDS, filed on 30 July 2008; (b) amendment and remarks, filed on 30 September 2008; (c) RCE, filed on 30 September 2009 (d) amendment and remarks, filed on 23 June 2009; and (e) supplemental response, filed on 8 July 2009.
- Applicants' remarks filed on 23 June 2009 regarding the 35 USC 103 rejection over Sugahara in view of Bhattacharyya are persuasive; as such, said rejection is withdrawn.
- Applicants' remarks filed on 8 July 2009 regarding the provisional obviousness-type double patenting rejections are persuasive; as such, said rejections are withdrawn.

\* \* \* \* \*

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on 8 July 2009 has been entered.

\* \* \* \* \*

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, claim 1 recites the following language: "(i) a selected minimal concentration of cadmium, lead, arsenic, and mercury". The claim does not specify what minimal concentration of the listed elements is being claimed; nor does the specification provide any defined minimal concentration to be used of the listed elements. As such, a person of ordinary skill in the art would not know precisely what concentration of the listed elements is being claimed. Clarification is required.

\* \* \* \* \*

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 3-8, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,617,215 ("Sugahara") (currently of-record).

Amended independent claim 1 recites a method for preparing a mineral composition that has a low pH comprising (a) providing a clay soil having (i) a selected minimal concentration of cadmium, lead, arsenic, and mercury, (ii) at least eight macro mineral elements, (iii) at least sixty micro mineral elements, (iv) at least ten rare earth elements, (v) at least four percent by weight calcium, (vi) at least four percent by weight

silica; and, (b) processing the clay soil by (i) admixing the soil with water and at least one acid to produce a slurry, (ii) allowing particles to settle from the slurry to produce an acidic liquid comprising at least eight macro mineral elements and at least sixty micro mineral elements, (iii) separating the acidic liquid comprising at least eight macro mineral elements and at least sixty micro mineral elements from the settled particles, and (iv) concentrating the separated acidic liquid to increase the concentration of mineral elements in the acidic liquid to greater than 4% by weight.

Sugahara teaches an acid treatment process of natural alumina-silica type clay (see col. 3, lines 14-20) comprising mixing the clay with an acid followed by extraction and removal of basic metal constituents from the clay (reading on claim 1) (see col. 1, lines 10-13; Example 1). The disclosed process results in effective utilization of the acid used and the basic metal constituents that are recovered (see col. 2, lines 19-21). The clay is admixed with an aqueous acid solution to produce a slurry (reading on claim 1(b)(i)) (see col. 2, line 28; col. 3, lines 55-60; col. 4, lines 40-42; col. 5, line 66 for slurry). The pH of the aqueous medium is not more than 1 (reading on claim 5) (see col. 2, line 35). Acetic acid (i.e. an edible acid) may be used (reading on claim 10) (see col. 3, line 63). In one embodiment, the mixture of clay and aqueous acid solution is then allowed to stand at room temperature in order to complete the reaction of the acid with the basic metal constituents contained in the clay; particles from the mixture would inherently settle in this step, reading on claim 1(b)(ii) (see col. 4, lines 65-70). In one embodiment, the mixture of clay and aqueous acid solution may be sprayed into a heated environment to produce granules of basic metal constituents from the clay

(reading on claims 3 and 4) (see col. 6, lines 35-42). The basic metal constituents contained in the clay are extracted into the aqueous acid solution having a pH below 1 and separated from the clay (reading on claim 1(b)(iii)) (see col. 6, lines 51-54; col. 7, lines 26-28; Example I). The basic constituents extracted from the clay may be collected in a concentrated state (reading on claim 1(b)(iv)) (see col. 7, lines 55-56; Example I). In one embodiment, the concentrated acidic solution contains a mineral element content of at least 11.5% (reading on claim 1(b)(iv)) (see Example 1; col. 9, line 21). The recovered low pH mineral composition is used, e.g., as an extraction medium (see col. 7, lines 18-23) or as a water treatment flocculation agent (see col. 10, line 2).

Sugahara explains that this method is beneficial because it leads to effective utilization of acid and the extracted product (see col. 2, lines 19-21).

Regarding the clay soil components recited in claim 1(a)(i)-(vi), the concentration of calcium and silica recited in claims (v) and (vi), the macro mineral elements recited in claim 6, and the micro mineral elements recited in claim 7 both the instant specification (see page 7, line 10 – page 11, line 25) and Sugahara (see col. 3, lines 14-20) use the same starting material, i.e., natural, unprocessed clay. As such, a person of ordinary skill in the art would expect the clay being processed by Sugahara to contain the same components in the same amounts as that being used in the instant application. Similarly, regarding the mineral elements recited in claim 1(b)(ii) and (iii), applicants use the same method to process natural clay as Sugahara, as explained above. As such, a person of ordinary skill in the art would expect the acidic liquid recited in instant claim 1(b)(ii) and (iii) to have the same components as the aqueous acid solution of

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Sugahara. The atomic numbers recited in claim 8 are inherent to the rare earth elements.

While Sugahara teaches the use of edible acids, such as acetic acid (see col. 3, line 63), the reference does not explicitly disclose the citric acid of instant claim 11. However, a person of ordinary skill in the art would have been motivated to use citric acid in lieu of acetic acid in the claimed extraction process, since both are organic acids. Based on the teachings of Sugahara, there is a reasonable expectation that the use of acetic acid or citric acid would result in an effective extraction minerals from natural clay. As such, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use acetic acid in lieu of citric acid in a mineral extraction of natural clay in view of the teachings of Sugahara.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to disclose a method of preparing a mineral composition by acid extraction of clay soil, as taught by Sugahara. One of ordinary skill in the art at the time the invention was made would have been motivated to use such a method because it leads to effective utilization of acid and the extracted product, as explained by Sugahara.

\*

2. Claims 1, 3-11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,617,215 ("Sugahara") in view of U.S. Patent Application No. 2004/0258597 ("Michalakos") (currently of-record).

Sugahara is discussed above.

Sugahara differs from the instant application in that it does not teach the reverse osmosis of instant claims 9 and 13, however water purification by reverse osmosis was known in the art at the time the instant application was filed, as shown by Michalakos (see paragraph 0009). Concentration of a liquid is an inherent feature of the reverse osmosis process.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to disclose a method of preparing a mineral composition by extraction using water purified by reverse osmosis, as taught by Sugahara in view of Michalakos. One of ordinary skill in the art at the time the invention was made would have been motivated to use such a method because it leads to effective utilization of acid and the extracted product, as explained by Sugahara.

\* \* \* \* \*

### ***Response to Arguments***

Applicants' arguments filed on 23 June 2009 directed to the Sugahara and Michalakos references have been fully considered but they are not persuasive.

Applicants argue that, "[t]he product produced by the method disclosed by Sugahara *et al.* is a clay composition lacking basic metal constituents, not the mineral composition of the claimed invention." See remarks, page 10.

Examiner respectfully submits that Sugahara uses the instantly claimed method (i.e. acid extraction - see above) to process the instantly claimed starting material (i.e. natural clay - see above). While a clay composition is one product produced by the method disclosed by Sugahara, a bi-product disclosed by Sugahara is the low pH



composition containing minerals extracted from natural clay, as explained in the 35 USC 103 rejection, above. Indeed, the instant specification, like Sugahara, recites a clay composition (i.e. the particles settled from the slurry) as one product of the process being claimed instantly (see Example 1).

Applicants argue that, "Sugahara et al. teach that the extracted mineral components are removed from the mineral composition and are a waste product in the production of active clay. Indeed, all of the Examples provided by Sugahara et al. teach a method of making an active clay. Sugahara et al. does not teach any use for the extracted minerals." See remarks, page 10.

Examiner respectfully disagrees that the mineral composition extract is considered a waste product by Sugahara. To the contrary, Sugahara explains that one of the benefits of the disclosed method is "the effective utilization of the acid used and the basic metal constituents that are recovered." (see col. 2, lines 19-21). Additionally, Sugahara explicitly discloses at least two uses for the extracted mineral composition: (1) as an extraction medium (see col. 7, lines 15-24; Example 15 - col. 21, lines 58-62) and (2) as a water treatment flocculation agent (see Example 1 - col. 10, lines 2-3; Example 3 - col. 13, lines 8-12).

Applicants allege that an excerpt from the Sugahara reference provides evidence that the mineral extract is discarded. See remarks, page 10.

Examiner respectfully submits that applicants' equating of the word "removed" from the quoted language in Sugahara with "discarded" is not supported by the reference. As explained immediately above, Sugahara explicitly isolates and uses the

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mineral extract after it is removed from the clay. The Sugahara reference does not state anywhere that the mineral extract is to be discarded. To the contrary, Sugahara explains that one of the benefits of the disclosed method is "the effective utilization of the acid used and the basic metal constituents that are recovered." (see col. 2, lines 19-21).

Applicants argue that the Michalakos reference does not teach separating or concentrating of an acidic liquid mineral composition derived from clay soil. See remarks, page 13.

Examiner respectfully submits that, as explained above, Sugahara was invoked for the teaching of separating or concentrating of an acidic liquid mineral composition derived from clay soil. Michalakos was cited for the limited teaching of water purification by reverse osmosis, as explained in the 35 USC 103 rejection, above.

★

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HASAN S. AHMED whose telephone number is (571)272-4792. The examiner can normally be reached on 9am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael P. Woodward can be reached on (571)272-8373. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. S. A./  
Examiner, Art Unit 1615

/MP WOODWARD/  
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